

REMARKS/ARGUMENTS

Re-examination and favorable reconsideration in light of the above amendments and the following comments are respectfully requested.

Claims 37 - 58 are pending in the application. Currently, claims 37 - 48 and 50 - 58 stand rejected; and claim 49 stands objected to.

By the present amendment, claim 37 has been amended to use terminology consistently throughout the claim and not for any reason relating to patentability. Additionally, claim 49 has been placed into independent form, including all limitations in its parent claims, and new claims 59 - 62 have been added to the application.

In the office action mailed May 12, 2004, claims 37 - 41, 43 - 47, 50 - 56, and 58 were rejected under 35 U.S.C. 103(a) as being unpatentable over Williams '103 and Brunskill; claims 42 and 48 were rejected under 35 U.S.C. 103(a) as being unpatentable over Williams '103 in view of Brunskill and Cronin et al.; claim 57 was rejected under 35 U.S.C. 103(a) as being unpatentable over Williams '103 in view of Brunskill in view of any one of Afeiche et al., Hipsky or Murry et al.; and claims 37 - 47 and 50 - 58 are rejected under the judicially created doctrine of obviousness type double patenting.

The foregoing rejections are traversed by the present response.

The present invention relates to an electrically driven aircraft cabin ventilation and environmental control system comprising means for capturing ram air, means for creating a first flow of the ram air and a second flow of the ram air, electrically driven means for receiving the first flow of ram air and for creating a pressurized ram air flow, first means for cooling the pressurized ram air flow, which first cooling means

receives the second ram air flow and uses the second ram air flow as a heat sink, second means for receiving the cooled pressurized ram air from the first cooling means and for cooling and removing moisture from the cooled pressurized ram air, which second means includes a reheater heat exchanger for cooling the cooled pressurized ram air from the first cooling means and a condenser heat exchanger for condensing water vapor contained in the cooled pressurized ram air and for further cooling the pressurized ram air, liquid from the condensed water vapor being separated in the condenser heat exchanger and being used to cool the second ram air flow, the air exiting the condenser being delivered to an opposite side of the reheater heat exchanger to be warmed, expansion means for receiving the cooled ram air from the opposite side of the reheater heat exchanger and for expanding the cooled ram air, and means for delivering said cooled pressurized air from the expansion means to the cabin, which delivering means comprises means for passing air exiting the expansion means through said condenser prior to delivering the air to said cabin.

The present invention also relates to a method for delivering conditioned air to an aircraft cabin comprising the steps of capturing ram air, creating a first flow of ram air and a second flow of ram air from the captured ram air, delivering the first flow of ram air to an electrically driven compressor and pressurizing the ram air in the compressor, providing first means for cooling the pressurized ram air, delivering the second ram air flow to the first cooling means and using the second ram air flow as a heat sink, providing second means for cooling the pressurized ram air and for removing moisture from the pressurized ram air, delivering the cooled pressurized ram air from the first cooling means to the second cooling means, removing moisture from the cooled

pressurized ram air in the second means by condensing the moisture out of said cooled pressurized ram air and separating a liquid formed by the condensed moisture, using the separated liquid to cool the second flow of ram air, providing expansion means and delivering the cooled ram air from the second cooling and moisture removing means to an inlet of the expansion means, and delivering the cooled pressurized air from an outlet of the expansion means to the cabin.

With regard to the rejection of claims 37 - 47 and 50 -58 on obviousness type double patenting, this rejection is defective because the Examiner has failed to show any teaching or suggestion which would motivate one of ordinary skill in the art to arrive at the combination of elements set forth in claims 37 - 47 and 50 - 58. While the Examiner may consider it obvious to the ordinary practitioner in the art that features of the claims could be eliminated, there is no evidence of record to support such a conclusion. The Examiner has not shown any teaching or suggestion which would cause one of ordinary skill in the art to omit any features. Additionally, the Examiner has not indicated which features other than the power turbine are to be omitted. Instead, the Examiner compares the claims of Applicants' patent to the claims pending in the case and concludes that any differences are obvious. It is submitted that this not an appropriate application of the law of obviousness type double patenting. The Examiner cannot use the teachings of Applicants' own claims against Applicant. The Examiner is hereby requested to withdraw this rejection.

With regard to the rejection of claims 37 - 41, 43 - 47, 50 - 56, and 58 over Williams '103 and Brunskill, it is submitted that the rejection is fatally defective because it is nothing more than a hindsight rejection.

The Williams '103 patent relates to a ventilation and environment control system which divides ram air into two flows with a first flow being passed to a motor driven compressor and a second flow being passed to a heat exchanger for use as a heat sink prior to being delivered to the ambient. The first flow of ram air exiting the compressor passes through the heat exchanger and then through a turbine prior to delivery to a cabin. Eventually, the ram air is dumped to ambient via a cabin air outflow valve. The compressor is located on a first shaft with a motor. The turbine is located on a second shaft with a motor/generator. The motor/generator and the motor are connected to each other via a system motor controller.

The Brunskill patent is cited for its teachings relating to passing a flow of air through a secondary heat exchanger, a reheater heat exchanger, a condenser heat exchanger, a water separator, and a turbine before being supplied to a cabin. The source of the air however is engine bleed air rather than ram air. Brunskill also teaches mixing a portion of the engine bleed air with the air which has been cooled and expanded prior to delivery to a cabin.

As can be seen from the foregoing discussion, neither of the patents by itself teaches the system and method of the present invention as set forth in claims 47 -41, 43 - 47, 50 -56 and 58. A review of the rejection itself shows that the Examiner has done nothing more than identified elements of the claimed method and system which can be found in the prior art. Nowhere in the rejection does the Examiner set forth what in the two references would teach or suggest the proposed combination. Also, nowhere in the rejection does the Examiner set forth any motivation for the combination. Thus, the Examiner has not made a *prima facie* case of obviousness.

As noted in *Environmental Designs, Ltd. v. Union Oil Co.*, 218 USPQ 865, 870 (Fed. Cir. 1983), "virtually all [inventions] are combinations of old elements". As noted by the Federal Circuit Court of Appeals in *In re Rouffet*, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998), "... an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be 'an illogical and inappropriate process by which to determine patentability.'" The *Rouffet* court goes on to say that "[t]o prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness. In other words, the examiner must show reasons that the skilled artisan, confronted with the same problem as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." This is what the Examiner has not done in the most recent office action in the instant application. There are no reasons given why one of ordinary skill in the art would arrive at the arrangement of the combination of elements set forth in the claims. In Applicants' opinion, there is no reason to combine Williams '103 and Brunskill because they are vastly different systems. The rejection is nothing more than the Examiner finding claimed elements in the prior art. Missing from the rejection is any reason why one of ordinary skill in the art

would arrange the prior art elements in the claimed configuration.

Assuming the references were properly combinable, claim 37 is still allowable because neither of the cited and applied references teaches or suggests any "means for passing air exiting said expansion means through said condenser heat exchanger prior to delivering said air to said cabin." Neither Williams' 103 or Brunskill have any such means. Williams '103 does not have a condenser heat exchanger. Brunskill has a condenser heat exchanger which separates liquid therein (trap 18), but the air exiting the turbine in Brunskill does not pass through this heat exchanger. Thus, when claim 37 is read as a whole, one can see that the claimed subject matter can not be found there.

Claim 41 is further allowable because neither reference has means for mixing engine bypass air with the cooled ram air exiting the cooling turbine.

Claim 44 is further allowable because neither reference teaches or suggests the claimed power conversion unit.

Claim 50 is further allowable because neither of the cited and applied references teaches or suggests means for removing a portion of the pressurized air exiting the electrically driven means upstream of the first cooling means to provide temperature modulation in an air cycle subsystem and air distribution system.

Claims 56 and 57 are further allowable for the same reasons as claim 37.

Claim 58 is allowable because neither of the cited and applied references teach or suggest its subject matter.

With regard to the rejections of claims 42, 48, and 57, these claims are allowable for the reasons given above and for the same reasons that their parent claims are allowable. The

Cronin et al., Afeiche et al., Hipsky, and Murry et al.
references do not cure the above noted deficiencies of Williams
'103 and Brunskill.

New claims 59 - 62 are allowable because none of the cited
and applied references teach or suggest the subject matter of
these claims.

For the foregoing reasons, the instant application is
believed to be in condition for allowance. Such allowance is
respectfully solicited.

Should the Examiner believe an additional amendment is
needed to place the case in condition for allowance, he is
hereby invited to contact Applicants' attorney at the telephone
number listed below.

A check in the amount of \$158.00 is enclosed herewith to
cover the cost of the extra independent claim and the extra
claims. Should the Commissioner determine that an additional fee
is due, he is hereby authorized to charge said fee to Deposit
Account No. 02-0184.

Respectfully submitted,

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I, Nicole Motzer, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on August 11, 2004.

